

Serial No. 10/658,840  
Filed: September 9, 2003

Remarks

The Examiner has issued a restriction under 35 USC 121, where the Examiner has divided the claims into 3 groups: Group I draws to a photoresist composition, Group II to a process for imaging a composition and Group III to a process of making a polymer. The Examiner states that the claimed composition of Group 1 can be used in a materially different process such as a process of injection molding for forming parts or structures.

Claim 1 has been amended to include a solvent in the photoresist composition. Support for the solvent is present in the specification on page 23, 23-27.

Injection molding is a process where a granulated or powdered thermoplastic is fed from a hopper into the injection molding machine. The solid plastic is heated to form a melt which can be pushed into a mold cavity, and under pressure and heat the melt takes the shape of the mold. The plastic is then cooled and the structure removed. The composition for injection molding requires a thermoplastic and not a photosensitive compound. The process is explained in more detail in a document at the website [www.design-technology.org/injectionmoulding2](http://www.design-technology.org/injectionmoulding2), a copy of the document is attached. The currently amended claim 1 for the liquid photosensitive composition includes a polymer, a solvent and a photoactive compound, and thus the present liquid composition cannot be used to form molds or structures. Therefore the Examiner is requested to combine Group I and Group II, since the applicants have shown that the claimed composition cannot be used in a materially different process, such as injection molding.

The Applicants note that the complete response to the office action requires the election of the invention to be examined. Applicants elect claims 1-17 of Group 1, and traverse the restriction between Group 1 and Group II. The

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Applicants reserve the right to file any number of divisionals from the present invention.

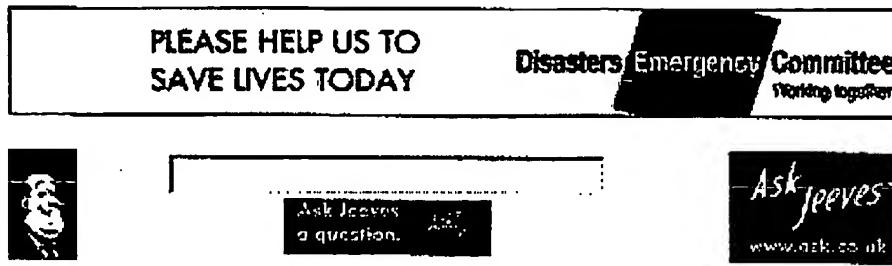
In view of the above amendments and remarks, the present application is believed to be in condition for allowance, and reconsideration of it is requested. If the Examiner disagrees, he is requested to contact the attorney for Applicants at the telephone number provided below.

Respectfully submitted,



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## Stages of Injection moulding

### Stage 1

Granulated or powdered thermoplastic plastic is fed from a **hopper** into the Injection Moulding machine.

### Stage 2

The Injection Moulding machine consists of a hollow steel barrel, containing a rotating screw (**Archimedial Screw**). The screw carries the plastic along the barrel to the mould.

Heaters surround the barrel melt the plastic as it travels along the barrel.

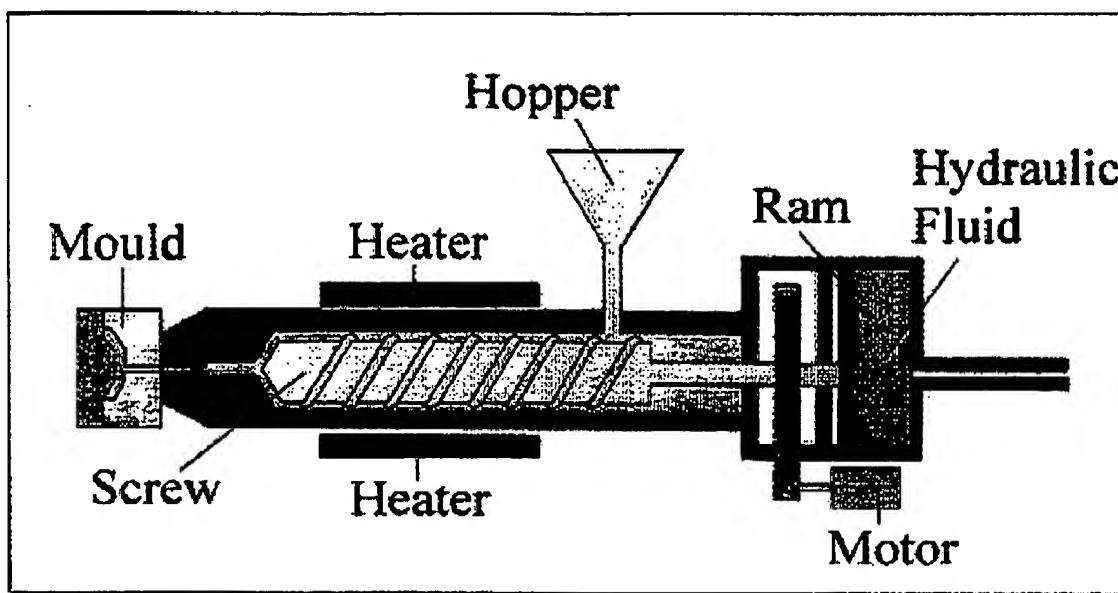
### Stage 3

The screw is forced back as the melted plastic collects at the end of the barrel. Once enough plastic has collected a **hydraulic ram** pushes the screw forward injecting the plastic through a **sprue** into a mould cavity. The mould is warmed before injecting and the plastic is injected quickly to prevent it from hardening before the mould is full.

### Stage 4

Pressure is maintained for a short time (**dwell time**) to prevent the material creeping back during **setting** (hardening). This prevents shrinkage and hollows, therefore giving a better quality product. The moulding is left to cool before removing (**ejected**) from the mould. The **moulding** takes on the shape of the mould cavity.

The image below shows an **Injection Moulding machine**.



### The Injection Moulding Mould

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